

**UNITED STATES PATENT APPLICATION**

of

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**and**

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for

**EXERCISE DEVICE WITH ELONGATE FLEXIBLE MEMBER**

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## **BACKGROUND OF THE INVENTION**

### **Field of the Invention**

[001] The present invention relates generally to exercise equipment. More particularly, embodiments of the present invention relate to an exercising device having an elongate flexible member connected to a base.

### **Related Art**

[002] In recent years, many people have realized the importance of exercising to maintain good health. While many traditional exercises can greatly benefit a person, traditional exercises often fail to develop certain muscles or certain groups of muscles. In particular, traditional exercise devices often fail to provide exercise for many of the less prominent muscles. Furthermore, certain traditional exercises fail to significantly enhance balance or other coordination skills.

[003] A good workout can provide exercise and strengthening of the core muscles in the body, including muscles in the abdominal, gluteus, and central regions of the body. Exercise devices and exercise training programs have been developed to fulfill the need for a more complete body workout, including a workout related to the core muscles. Full body training devices often have a weight system or other type of resistance system that uses a number of cables, pulleys, and benches. However, these full body trainers are often bulky and often have intricate parts that make them expensive to buy, inconvenient to store, and difficult to use.

[004] Recently, balancing devices have been developed that are capable of strengthening the core muscles while simultaneously training the user to balance. Some of these devices, among others, have a platform mounted on a rounded chamber. The

user stands on the platform or chamber and performs exercises. Cords connected to the base of the balancing device provide resistance for performing exercises such as arm curls.

[005] Exercising on such a balancing device can develop balancing skills, coordination skills, and core muscles. In particular, devices that use an inflatable bladder require an additional element of balance because as the user applies force to one foot, the bladder flexes and transfers some of that force to the other foot.

[006] However, the existing inflatable exercise devices provide poor foot placement and stance. For example, the foot of a user positioned on a dome-shaped device can have the tendency to roll out. While the tendency to roll out does create more instability, the benefits to the instability are offset by the unnatural position and the increased risk of rolling an ankle. In addition, if the user wants to place his or her feet on the horizontal portion of a dome-shaped device, the user's feet must be together.

[007] Therefore, what is needed is an exercise device that provides the benefits of a balancing device, while reducing the tendency to roll the foot out.

## SUMMARY OF THE INVENTION

[008] Embodiments of the present invention relate generally to an exercise device that requires balance. In addition to improving a user's balance, embodiments of the present invention condition the many muscles that are required to maintain balance such as core muscles.

[009] In one embodiment of the present invention, the exercise device includes a flexible member and a base. The flexible member has a pair of foot placement portions where a user places his or her feet when positioned on the exercise device. The foot placement portions are portions of the flexible member that are substantially horizontal. In an exemplary embodiment, the flexible member is inflatable and an interior portion of the flexible member defines a chamber.

[010] A user standing on the elongate exercise device receives a more complete body workout than would be obtained by exercising on a solid surface. The more complete workout arises from the instability in the exercise device, which requires the user to exert many muscles that would otherwise not be used.

[011] The shape of the flexible member is generally elongate and in one embodiment the flexible member has a concave central portion separating the foot placement portions. The elongate shape of the exercise device allows the foot placement portions to be separated by enough distance that the user standing on the device assumes the athletic stance such as a stance that is shoulder width.

[012] In an exemplary embodiment, the user standing with a foot on each foot placement portion is facing perpendicular to the longitudinal axis of the exercise device. Thus, the user's forward-to-back motion is along the transverse axis and the user's side-to-side motion is longitudinal. The elongate feature of the exercise device reduces the

instability of the device in the longitudinal direction. Thus, the user exercises less balance from side-to-side. While the athletic stance increases stability for side-to-side motion, side-to-side balance is still required by the exercise device because of the ability of the flexible member to flex from side-to-side.

[013] Stability in the forward-to-back motion is not reduced by elongation in the longitudinal direction. Thus, the exercise device requires a user to maintain more balance forward-to-back in comparison to side-to-side. Favoring instability in the forward-to-back direction is more desirable because a person's foot naturally rotates better from front-to-back rather than side-to-side. Indeed, side-to-side rotation of the ankle often results in injury. In addition, exercising while in the athletic stance develops balancing skills that are more useful for athletic persons.

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## **BRIEF DESCRIPTION OF THE DRAWINGS**

[014] To further clarify the above and other advantages and features of the present invention, a more particular description of the invention will be rendered by reference to specific embodiments thereof, which are illustrated in the appended drawings. It is appreciated that these drawings depict only typical embodiments of the invention and are therefore not to be considered limiting of its scope. The invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

[015] Figure 1 is a perspective view of an exemplary exercise device of the present invention;

[016] Figure 2 is an elevational side view of the exercise device of Figure 1;

[017] Figure 3 is an elevational end view of the exercise device of Figure 1;

[018] Figure 4 is a bottom view of the exercise device of Figure 1;

[019] Figure 5 is a cross-sectional view of Figure 2; and

[020] Figure 6 shows a user standing on the exercise device of Figure 1.

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## **DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS**

[021] Exemplary embodiments of the present invention relate generally to exercise devices having a flexible member. A user can perform exercises on the device to strengthen core muscles and develop balancing skills.

[022] Figure 1 shows an exemplary embodiment of an exercise device 10 of the present invention. A flexible member 12 is connected to a base 14. Base 14 is configured to be placed on a support surface such as a floor. Flexible member 12 is elongate and has two foot placement portions 16A and 16B. Flexible member 12 also has a concave central portion 18. In the embodiment shown, flexible member 12 is elongate and the concave central portion 18 separates the two foot placement portions 16A and 16B.

[023] In an exemplary embodiment, the flexible member 12 is symmetrical about the longitudinal and transverse axis, the longitudinal axis being the axis running parallel to the line running through foot placement portions 16A and 16B. The transverse axis is the axis running perpendicular to the longitudinal axis.

[024] Flexible member 12 may be made from any material, such as a non-rigid plastics, that allows the flexible member 12 to deflect when a user is positioned on it. In one embodiment, the flexible member 12 is made of vinyl.

[025] In Figure 1 the flexible member 12 is an inflatable bladder. However, in another embodiment, the flexible member is not inflatable. The flexible member can be made of a non-inflatable material, in which case, the flexible member can be filled with foam or a compressible substance. In yet another embodiment, the flexible member may also be filled with fillers such as silicone or filled with a fluid such as water.

[026] Base 14 is connected to flexible member 12 and provides structural support for the flexible member 12. The base 14 may be made of any rigid material. Suitable materials include plastic, wood, fiberboard, metal, among others.

[027] Referring now to Figure 2, the flexible member 12 has two foot placement portions 16A and 16B and a concave central portion 18. Foot placement portions 16A and 16B are the portions of the flexible member 12 that are substantially horizontal to the board and a stable surface on which the exercise device 10 has been placed. The flexible member 12 is elongate such that the foot placement portions can be separated, thereby requiring a wider stance. In one embodiment, the substantially horizontal surfaces that form the foot placement portions 16A and 16B are separated by the concave central portion 18. Separating the foot placement portions 16A and 16B creates more distinct locations for foot placement.

[028] Foot placement portions 16A and 16B are two raised portions. The two raised portions are two portions of the flexible member 12 that each forms a peak or a distinct portion on the flexible member 12. The elongate feature of the flexible member 12 allows the raised portions to be separated by a distance and provides for a wider stance on the flexible member 12.

[029] While flexible member 12 has been illustrated with only two raised foot placement portions, it should be understood that the flexible member could have any number of foot placement portions or raised portions.

[030] The flexible member 12 has a plurality of protrusions 20 that enhance the gripping ability of the surface of flexible member 12. The protrusions 20 may take any form such that a portion of the surface of the flexible member is textured to provide a better grip between the flexible member and a user positioned on the flexible member.



The concave central portion 18 is also textured with longitudinal lines to provide a smoother gripping surface and to make the concave central portion more durable.

[031] In Figure 2, attachment rings 22 are connected to base 14 and provide a point where elastic cords 42 (Fig. 6) may be attached. The base 14 may be configured to have any number of attachment rings 22 and attachment rings 22 may be installed anywhere on base 14 where attachment rings 22 do not interfere with flexible member 12. As shown in Figure 2, flexible member 12 is symmetrical about a transverse axis.

[032] In one embodiment, flexible member 12 can be inflated to such an extent that the degree of curvature in central portion 18 either decreases or is no longer present, i.e., such that there is no significant concavity in central portion 18. In this scenario, the foot placement portions may still be distinguished from each other by being (i) raised with respect to the central portion of the flexible member; and/or (ii) by each having a surface texture (e.g., each having protrusions thereon) that is different from the texture of the central portion.

[033] For example, in figure 2, each foot placement portion 16A, 16B has a surface texture comprising protrusions 20, while central portion 18 has a surface texture comprising longitudinal slats 21. Consequently, foot placement portions 16A, 16 B are defined by being raised with respect to central portion 18 and/or by having different surfaces from central portion 18. In yet another embodiment, the foot placement portions are derived by having surfaces that are different from each other

[034] Figure 3 also shows flexible member 12 connected to base 14 and having symmetry about a longitudinal axis.

[035] Referring now to Figure 4, both the base 14 and the flexible member 12 have a peanut-shaped outline. Base 14, however, may take any desired shape so long as the

base is sufficiently large to receive and connect to the flexible member 12. For instance, the base 14 may be square or rounded. Furthermore, the base 14 may extend any desired distance beyond the flexible member 12.

[036] In the embodiment shown, base 14 has one or more slots 24 that are configured to receive one or more tabs 28 that extend from flexible member 12 (Figures 1 and 4). In an exemplary embodiment, slots 24 are evenly spaced on the perimeter of the base 14.

[037] In one embodiment, the base 14 is a planar board. Objects can be attached to the base 14 by drilling holes through base 14 and attaching the objects. For instance, base 14 has attachment rings 22 (Fig. 2) connected using a nut 34 in a typical bolt and nut fashion. The nut 34 is recessed into base 14 to prevent the nut 34 from catching or scratching a support surface.

[038] Base 14 has an aperture 30 where the base is cut away to expose the flexible member 12. Flexible member 12 has a valve 32 positioned within aperture 30 that can be used to inflate flexible member 12.

[039] Figure 5 shows a cross-sectional view of the flexible member 12 connected to the base 14. Flexible member 12 has an upper surface 36 and a lower surface 38 and an interior portion that defines a chamber 40.

[040] As described above, the flexible member 12 may be made of any material that would flex under the weight of a user thereon. In one embodiment, lower surface 38 is made of the same material as upper surface 36 and upper and lower surfaces 36 and 38 are constructed as one continuous sheet.

[041] In another embodiment, lower surface 38 is made of a different material than the material of upper surface 36 and upper and lower surfaces 36 and 38 connect near the

lower periphery of flexible member 12. Furthermore, lower surface 38 of flexible membrane 12 can be made of a material other than a flexible material. Flexible member 12 is sufficiently flexible if a substantial portion or most of the upper surface is flexible, whether or not the lower surface 38 is flexible.

[042] In an exemplary embodiment, the flexible member 12 has only one chamber 40 such that when a user positions himself or herself on the flexible member 12, a force applied to one area of the flexible member 12 transfers to another area of the flexible member 12. However, in other embodiments, the flexible member 12 includes more than one chamber 40.

[043] As mentioned above, the flexible member 12 may be inflatable. An inflatable flexible member 12 has a chamber 40 that is substantially airtight. The chamber 40 is filled with air via the valve 32. Valve 32 is inserted into the lower surface 38 of flexible member 12 and sealed to lower surface 38 about the perimeter of the valve 32. Valve 32 may be any type of valve configured to maintain pressure in chamber 40. For instance, valve 32 may be a one-way valve that requires insertion of a needle. Alternatively, valve 32 opens upon pinching the valve 32 and a user blowing air therein inflates the chamber.

[044] Flexible member 12 is connected to base 14 through a plurality of tabs 28 extending from flexible member 12. Slots 24 are configured to receive tabs 28. Each slot 24 may be molded to have specific features that receive corresponding features on the tabs, thus providing a more secure connection. The tabs extend from flexible member 12 into the slots 24 where the tabs are secured using a suitable means such as staples, fasteners, adhesives, etc. In an exemplary embodiment, the tabs extend from the flexible member at the periphery of the flexible member 12. In one embodiment,

the tabs 28 extend from lower surface 38. Tabs 28 may also attach the flexible member at a location other than the periphery of the flexible member 12. The flexible member 12 may also have a single tab connecting the flexible member 12 to the base 14.

[045] In another embodiment, the flexible member 12 is attached to the base 14 by means other than tabs. For instance, the lower surface 38 may be directly connected to the base with an adhesive or fastener.

[046] As shown in Figure 6, the exercise device 10 supports a user thereon. According to one exemplary use, the user places his feet on foot placement portions 16A and 16B. The flexible member 12 is elongate such that the foot placement portions 16A and 16B cause the user to be in the athletic stance when positioned thereon as indicated in the Figure 6 by the user's feet being substantially shoulder width apart. The elongate shape facilitates an athletic stance, which places the user in a natural stance and which trains the exerciser for most types of athletic activities, such as basketball, baseball, skiing, weightlifting, football, soccer, archery, skeet and trap shooting, fly fishing, hockey and other similar activities.

[047] When the user is standing on foot placement portions 16A and 16B, the force applied to the flexible member 12 from the user's foot is transferred to the rest of the flexible member 12 and to the user's other foot. The concave central portion 18 may also absorb some of the force by bulging, as illustrated in Figure 6.

[048] The user experiences less instability due to the ability to assume the athletic stance. Despite the user's increased stability from the athletic stance, the unstable nature of the flexible member 12 provides ample instability to require the user to maintain balance while standing thereon. The user is still required to maintain side-to-

side balance because the flexible member 12 flexes when pressure is applied to one side.

[049] Forward-to-back instability is created from the ability of the flexible member 12 to flex and from the rounded shape that the elongate flexible member 12 has in the transverse direction. Increased instability in the transverse direction is beneficial because a users foot naturally rotates forward-to-back better than from side-to-side. Thus, the exercise device 10 is a more natural balance training and exercise device because it requires more balance in the direction of natural ankle rotation.

[050] As shown in Figure 6, the exercise device 10 includes a pair of elastic cords having a handle 44 attached at the upper end thereof. The user performs arm curls by stretching the elastic cords 42 using the handles 44.

[051] As the user performs arm curls while positioned on the exercise device, the user is required to maintain balance. The user has to exert many different muscles to maintain balance. The resistance provided by the elastic cords 42 is transferred to those muscles required for maintaining balance thereby increasing the workout to the many muscles required for balancing. A user can increase the difficulty of the workout by increasing the resistance in the elastic cords 42. The elastic cords 42 can be a specific size for a specific user or may be adjustable to the size of a person. Adjusting the elastic cords 42 to a shorter length may also increase the resistance of the elastic cords 42 for a particular person.

[052] Other exercises may be performed on exercise device 10. For instance, a user can perform any number of lifting exercises that use free weights such as dumbbells or mechanical devices such as resistance trainers.

[053] The exercise device 10 can also be used for exercises that do not require standing on the foot placement portions 16A and 16B or raised portions. For instance, the elongate shape of the exercise device 10 allows the device to be used for Pilates long box and short box exercises.

[054] The concave central portion 18 can also be used to perform exercises. For instance, a user may perform sitting-type exercises, such as sit-ups or abdominal crunches, with the user's lumbar region located on concave central portion 18. Concave central portion 18 can also function as a backrest or headrest for exercises performed on a support surface such as the floor.

[055] Additional disclosure relating to the present invention is disclosed in a United States design patent application entitled EXERCISE DEVICE WITH ELONGATE FLEXIBLE MEMBER to William T. Dalebout and Jeremy T. Butler filed on August 27, 2003, via Express Mail No.: EV 291368844 US, which is incorporated herein in its entirety by reference.

[056] The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.